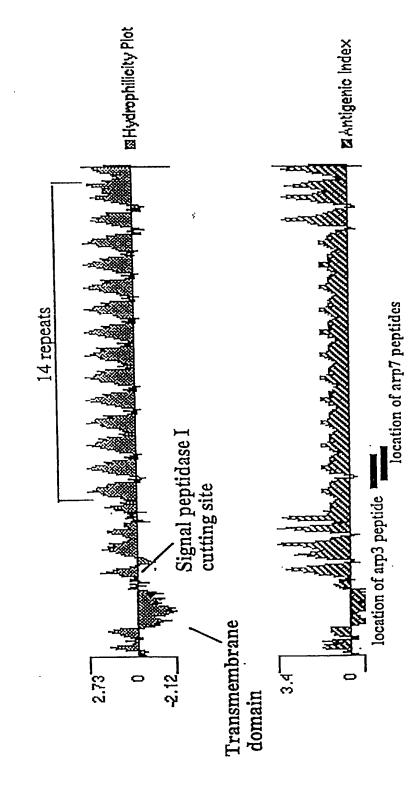


1, 4 anti-*T. pallidum* serum 2, 3 anti-*arp* peptide Ab 5 pre-bled (rabbit)

FIGURE 1

Characteristics of the arp protein



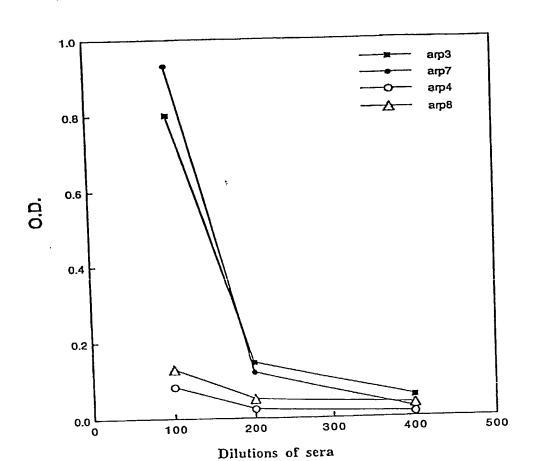
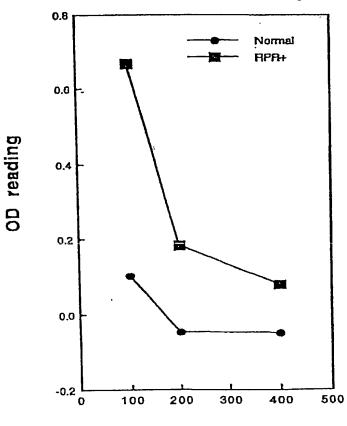


FIGURE 3

Detection of anti-arp antibody in human serum using peptide arp#3



Serum Dilutions

GTCGATGCAC AGCTGACGCT CTCAGGTCTT GCACATATTG CGCGGCTGGT GCCGACATCT CTCCTGCCAC CTGCTACAGT GTCAGGTTCA TCGGGGAAATT GAGGAAACTG TTATCCGCGC TCCCCATCTT CCGATACTGG ATCGGTGTCG GGGGGAGTAG GAGTGGGGAA GCGTCTGTGC TGTATCGCGC TGGTGATGCG CGCGTTCTGG TACCTCAGTG CGAAGGGAGT CAGTATCGCT TACGTGCCCG TTCATCGCAG TGGGGGCTCT CAAGATTCGA GCATGAGCAC AGCAGTGGGC GATACGCTCC TTAACGCCTT CTTCGACGAG GGAATGGTGG TTACGGCAGT ACCGCCGGGT GTACACGACG GCCAGACTAT AGCAGAAATT GCTGCATGTT TTGAAGTAAT GCCCGATTAC GCGTTGTTGG TGCAGTTTCA TTCCGCTCGT CTCCCTGGTG GGGAAAGCCC TACCTCCCGT GCCCCCCCCC CTTGGTCTTC AGAGAGGTTC CGTGCTGTGT GGACATTAGT GGATTTGCAT ACGCAGCGCG CGTGTGTCTA TGCGTGTGTC GCCCCATACA GGGAGAGTAT TCCCGTTTCT GAGTGTGTTG ACGTCGTTAC CCGTTGTATT GCGGAGCAGG CAATTTCGTA CATACGGGTG GGCACGAGCA CCGATACAGC CGGAGTTCAG TTATAGAAAA TAGGGAATAC GTAAGGTGTC TGCAGCGTCG CTTCAGCTGG GAGGAGTCTT AŢGATTAAAC GCCACATGTT CGCAAAAAGG GGTGTCAAAG GAAGATCTTA CCTGGTTAGG GTGAACACTG CGTTCTTAGT GCTTTGTGTT GCTTCTGTCA CGCCGCTTTG GGCTGTGTGG GAAGGGAATG CAGAAATTGG CCCCCAGGGA AGTTTTCTGC AGGACGGC

(predicted start of arp) A TGTTTGTGCG CAGTGACATG TTCCCCAAAA ACACTGCTGT TGAAATTAGC AACTTAGAAA AGAATGCCAA GGCTCAGGCA GTGGTTATTG GGCACGCAGG GATCCCCGGT CTTCTAGTTA GCCTTGCACC CGCTGCTGCA GCACAGCTTG GGATTGGCGT ATACCAAGCT GTGCGTGTAC GCGTACGTAC CTTGGGTACC GTGCGCGGTG GGTCTCAAAC AAGTCAGGAC GGACTGTCCC TTGCATCTTT GCCGTCCCGT GTGCCTGCGC GCCCCGCGCA GCGTGATCCT CTGTCATCCC CGCCGGCAGG TCACACTGTA CCGGAATATC GCGATACGGT TATTITCGAT GACCCGCGTT TGGTTTCCCC TTTGTCTCGT GAGGTGGAGG ACGCCCGAA GGTAGTGGAG COGGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACGCCCCGAA GGTAGTGGAG COGGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACGTGCCGAA GGTAGTGGAG COGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACCCCCCGAA GGTAGTGGAG COGGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACGTGCCGAA GGTAGTGGAG COGGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGA ACGTGCCGAA GGTAGTGGAG COGGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACGCGCOGAA GGTAGTGGAG COGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACGCGCCGAA GGTAGTGGAG COGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACGTGCCGAA GGTAGTGGAG COGGCCTCTG AGCGTGAGGG AGGGGAGCGT GAGGTGGAGG ACGTGCCGGG GGTAGTGGAG COGGCCTCTG GGCATGAAGG AGGGGAGCGT GAGGTGGAGG ACGTGCCGG GGTAGTGGAG COGGCCTCTG GGCATGAAGG AGGGGAGCGT GAGGTCGCTT CTCAGCATAC GAAGCAGCCA TCCCACTCGG TTTCCAACTC AGCTCCCAAT CAGTTTCGGA AACCCTGA (end of arp)

GG GGGAACTCCC CTTTACGCTC CCTGACCTAT CCGAGTCAGA AATTGTGGTT CCGGAGGAAC
AGAAAGGACG TGCGCATCCC CAGGTGATAC CCGAGGGTGC GCCACGTGGA CTGCAACCTG
GTGAATACTA CGTACAGATT GCAGTCTTTC ATGACGCTAT CCAGGTGCAG AGCATTGTCC
ACCGTTACGG GGTAGAATAC CCCATCGCAG TGGAGCAGGA CATCCATGAA GGTAAGGTGC
GTTTCACCGT ATGCGTCGGT CCTGTCCAAA AAGACGAACG CGGCGCGGTA CTAGAGAACT
TCCAAAGGTT TGGATTCAAG GACGCCTTTC TGAAAAAGGC GCGATGATCA CGTCCGCCCT
CCTCTTCCCC TCGTGACCGT GGTGACTCGC CCCGAAGGG CCCCACAGAG CCCGAAGGAA
CGGAAGGGAA GGGGCAGACT TAACTATTTC TTTGTTTTTT TGAGCACGTA AAACGCCGCC
ATCTCCTTTG AAGGCTTTCC TGCGCCGGGA GCGCCCATGT AGCGAACGGA GTTACTGTCT
ATCAGCTCGT ACAGCTCTTT CTCGTGCGGT GCCTTCGATT GCTCCGAGGA CACAAGCGAG
AGTTCGACAA TTCCGTCTTC ACGTACCATC CACGTACCGC GATACGTAAG AGGAGAAGGT
GCCGACTTCT TCTCAAGGGC AAGCTCTACC TTTTGCGCAG TGCCATCCGC GTTGAACGTC ACAGTC

T. pallidum ssp. Pallidum (Ni)-arp protein sequence

3, 5, 9, 10, 11, 12 1, 2, 4, 7, 8 MFVRSDMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS Type I: PPAGHTVPEY RDTVIFDDPR LVSPLSR

Type II: Type III: Type IV:

EVE <u>DAP</u>KVVEPAS EREGGER EVE DAPKVVEPAS EREGGER

EVE DVPKVVEPAS EREGGER

EVE DAPKVVEPAS EREGGER EVE DVPKVVEPAS EREGGER EVE NVPKVVEPAS EREGGER

EVE DVPKVVEPAS EREGGER EVE DVPKVVEPAS EREGGER EVE DVPKVVEPAS EREGGER EVE DAPKVVEPAS EREGGER EVE DAPKVVEPAS EREGGER EVE DVPKVVEPAS EREGGER

EVE DVPGVVEPAS GHEGGER

EVE DVPGVVEPAS GHEGGER

EVA SQHTKQPSHS VSNSAPNQFR KP

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Pertenue (CDC-2) nucleotide sequence

	T. pallidum ssp	. Pertenue (UDC-	T. pallidum ssp. Pertenue (CDC^{-2}) involved sequence	
\frac{1}{2}	GCAGTGACAT	GTTCCCCAAA	AACACTGCTG	TTGAAATTAG
	AAGAATGCCA	AGGCTCAGGC	AGTGGTTATT	GGGCACGCAG
CAACITAGAA	TCTTCTAGIT	AGCCTTGCAC	CCGCTGCTGC	AGCACAGCTT
GCA1CCCCGG	TATACCAAGC	TGTGCGTGTA	CGCGTACGTA	CCTTGGGTAC
	GGGTCTCAAA	CAAGTCAGGA	CGGACTGTCC	CTTGCATCTT
בסימים מינים מינים	TGTGCCTGCG	ენენეეეეეენე	AGCGTGATCC	TCTGTCATCC
10CCG1CCC	GTCACACTGT	ACCGGAATAT	CGCGATACGG	TTATITTCGA
	TTGGTTTCCC	CTTTGTCTCG	TGAGGTGGAG	GACGTGCCGA
TOWOOD	GCCGCCTCT	GAGCGTGAGG	GAGGGGAGCG	TGAGGTGGAG
CONTRACTOR	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG	GAGGGGAGCG
GACGIGCCGA	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT	GAGCGTGAGG
DAGGGGAGGG	TGAGGTGGAG	GACGTGCCGA	AGGTAGTGGA	GCCGGCCTCT
GAGCGTGAGG	GAGGGGAGCG	TGAGGTCGCT	TCTCAGCATA	CGAAGCAGCC
ATCCCACTCG	GTTTCCAACT	CAGCTCCCAA	TCAGTTTCGG	AAACCCTGA

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T. pallidum ssp. Pertenue (CDC-2) arp protein sequence

MFVRSDMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAQL GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS PPAGHTVPEY RDTVIFDDPR LVSPLSR

EVE DVPKVVEPAS EREGGER EVE DVPKVVEPAS EREGGER EVE DVPKVVEPAS EREGGER EVE DVPKVVEPAS EREGGER

EVA SQHTKQPSHS VSNSAPNQFR KP

T. pallidum ssp. endemicum (Bosnia) nucleotide sequence

		7001110001	CAGCICCCAA	GITICCAACI
	AAACCCTGA			
ATCCCACTCG	CGAAGCAGCC	TCTCAGCATA	TGAGGTCGCT	GAGGGGAGCG
GAGCGTGAGG	GCCGGCCTCT	AGGTAGTGGA	GACGTGCCGA	TGAGGTGGAG
GAGGGGAGCG	GAGCGTGAGG	GCCGGCCTCT	AGGTAGTGGA	GACGTGCCGA
TGAGGTGGAG	GAGGGGAGCG	GAGCGTGAGG	GCCGGCCTCT	AGGTAGTGGA
GACGTGCCGA	TGAGGTGGAG	GAGGGGAGCG	GAGCGTGAGG	GCCGGCCTCT
AGGTAGTGGA	GACGTGCCGA	TGAGGTGGAG	GAGGGGAGCG	GAGCGTGAGG
GCCGGCCTCT	AGGTAGTGGA	GACGTGCCGA	TGAGGTGGAG	GAGGGGAGCG
GAGCGTGAGG	GCCGGCCTCT	AGGTAGTGGA	GACGTGCCGA	TGAGGTGGAG
GAGGGGAGCG	GAGCGTGAGG	GCCGGCCTCT	AGGTAGTGGA	GACGTGCCGA
TGAGGTGGAG	GAGGGGAGCG	GAGCGTGAGG	GCCGGCCTCT	AGGTAGTGGA
GACGTGCCGA	TGAGGTGGAG	CTTTGTCTCG	TTGGTTTCCC	TGACCCGCGT
TTATTTTCGA	CGCGATACGG	ACCGGAATAT	GTCACACTGT	CCGCCGCAG
TCTGTCATCC	AGCGTGATCC	ეხენეეეეენე	TGTGCCTGCG	TGCCGTCCCG
CITGCATCIT	CGGACTGTCC	CAAGTCAGGA	GGGTCTCAAA	CGTGCGCGGT
CCTTGGGTAC	CGCGTACGTA	TGTGCGTGTA	TATACCAAGC	SOSSIT VEEDS
AGCACAGCTT	CCGCTGCTGC	AGCCTTGCAC	TCTTCTAGTT	GGATCCCGG
GGGCACGCAG	AGTGGTTATT	AGGCTCAGGC	AAGAATGCCA	CAACTTAGAA
TTGAAATTAG	AACACTGCTG	GTTCCCCAAA	GCAGTGACAT	V TOTALLET

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Inventor (s): Liu et al.

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T. pallidum ssp. endemicum (Bosnia) arp protein sequence

MFVRSDMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAQL GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS PPAGHTVPEY RDTVIFDDPR LVSPLSR

EVE DVPKVVEPAS EREGGER

EVA SQHTKQPSHS VSNSAPNQFR KP

FIGURE 10

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arp#1

SEQ ID NO: 7 LVSPL REVEDAPKVVEPAS-

arp #2

SEQ ID NO: 8 -SR-EVED APKVVEPASEREGG-

arp #3

SEQ ID NO: 9 -PK VVEPASEREGGEREVEDA-

TP-arp #4

SEQ ID NO: 10 PKNTAVEISNLE KNAKAQAVV

TP-arp #5

SEQ ID NO: 11 GHAGIPGLLV SLAPAAAAQLGIGVY

TP-arp #6

SEQ ID NO: 12 VPA RPAQRDPLSS PPAGHTVPEY RD

TP-arp #7

SEQ ID NO: 13 VVEPAS EREGGEREVE DVPKV

TP-arp #8

SEQ ID NO: 14 VVEPASGHEGGEREVA SQHT KQPSHS

TP-arp #9

SEQ ID NO: 15 EVEDVPKVVEPASEREGGER

TP-arp #10

SEQ ID NO: 16 EVENVPKVVEPASEREGGER

TP-arp #11

SEQ ID NO: 17 EVEDAPKVVEPASEREGGER

TP-arp #12

SEQ ID NO: 18 EVEDVPGVVEPASGHEGGER

FIGURE 11

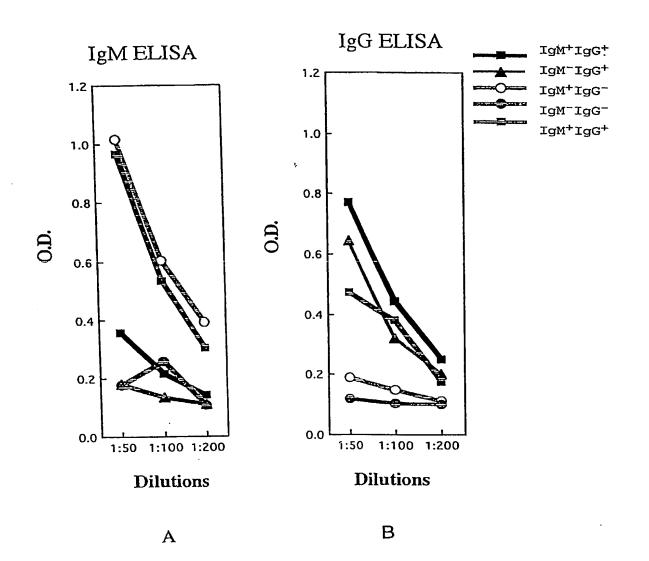


FIGURE 12

Flowcytometry analysis of arp 9

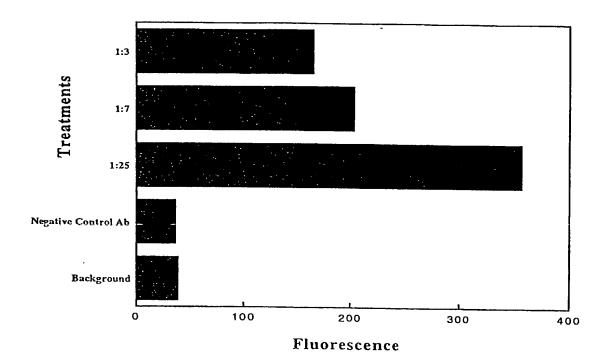


FIGURE 13

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FIG. 14

T. pallidum subspecies. pallidum, Nichols strain

MFVRSDMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDAPKVVEPASEREGGE
REVEDAPKVVEPASEREGGE
REVEDVPKVVEPASEREGGE
REVEDAPKVVEPASEREGGE
REVEDVPKVVEPASEREGGE
REVEDAPKVVEPASEREGGE
REVEDAPKVVEPASEREGGE
REVEDAPKVVEPASEREGGE
REVEDVPKVVEPASEREGGE
REVEDVPKVVEPASEREGGE

Type III: 13, 14

Type I: 1, 2, 4, 7, 8

Type II: 3, 5, 6,9, 10, 11, 12

REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPGVVEPASGHEGGE REVEDVPGVVEPASGHEGGE

REVA SQHTKQPSHS

VSNSAPNQFRNPEGELPFTLPDLSESEIVVPEEQKGRAHP QVIPEGAPRG LQPGEYYVQI AVFHDAIQVQ SIVHRYGVEYPIAVEQDIHE GKVRFTVCVG PVQKDERGAV LENFQRFGFK DAFLKKAR

FIG. 15

T. pallidum subspecies pertenue, CDC-2 strain

MFVRSDMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE

REVA SQHTKQPSHS VSNSAPNQFR NPEGELPFTL PDLSESEIVV PEEQKGRAHP QVIPEGAPRG LQPGEYYVQI AVFHDAIQVQ SIVHRYGVEY PIAVEQDIHE GKVRFTVCVG PVQKDERGAV LENFQRFGFK DAFLKKAR

Inventor (s): Liu et al.

Express Mail No.: EL874428941US / Date of Depositi December: 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141, 2001 | 141

FIG. 16

T. pallidum subspecies endemicum, Bosnia strain

MFVRSDMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS PPAGHTVPEY RDTVIFDDPR LVSPLS

REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE

REVA SQHTKQPSHSVSNSAPNQFR NPEGELPFTL PDLSESEIVV PEEQKGRAHP QVIPEGAPRGLQPGEYYVQI AVFHDAIQVQ SIVHRYGVEY PIAVEQDIHE GKVRFTVCVGPVQKDERGAV LENFQRFGFK DAFLKKAR

FIG. 17

T. pallidum subspecies. pertenue, CDC-1 strain

MFVRSDMFPK NTAVEISNLE KNAKAQAVVI GHAGIPGLLV SLAPAAAAQL GIGVYQAVRV RVRTLGTVRG GSQTSQDGLS LASLPSRVPA RPAQRDPLSS PPAGHTVPEY RDTVIFDDPR LVSPLSREGGE

REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE REVEDVPKVVEPASEREGGE

REVASQHTK QPSHSVSNSA PNQFRNPEGE LPFTLPDLSE SEIVVPEEQK GRAHPQVIPE GAPRGLQPGE YYVQIAVFHD AIQVQSIVHR YGVEYPIAVE QDIHEGKVRF TVCVGPVQKD ERGAVLENFQ RFGFKDAFLK KAR